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SUBJECT: BIOFUELS IN MOZAMBIQUE: MORE ANALYSIS

REF: A. MAPUTO 1073
[1](#)B. MAPUTO 1051
[1](#)C. MAPUTO 1018
[1](#)D. MAPUTO 958
[1](#)E. 07 MAPUTO 1341

[1](#)1. (U) This cable represents the fourth in a series in an innovative collaboration in energy/resource reporting and commercial advocacy between Embassies Maputo and Pretoria. Embassy Pretoria Minerals/Energy Officer and Maputo Political/Economic officer visited energy/minerals projects in northern Tete province and met relevant government and private officials in Maputo October 13-17, [1](#)2008.

[1](#)2. (SBU) SUMMARY: The biofuels industry is often referred to as a potential energy security solution for Mozambique given the country's 89 million acres of arable land; of which only 12 percent is currently in use; experience with sugar cane production; tropical climate; viable irrigation; access to ports; and relatively inexpensive labor and electricity. The Government of Mozambique (GRM) is still developing its policy on biofuels, but has already approved several bio-ethanol projects which should become operational in several years. Bio-diesel projects from sources as varied as coconuts and jatropha seem less likely candidates. Currently, however, international prices of petroleum and tight credit markets will likely limit biofuels production in Mozambique. END SUMMARY.

MOZAMBIQUE'S BIOFUEL POLICY

[1](#)3. (SBU) In January of 2008, President Guebuza announced that biofuels development in Mozambique would not dislodge food production and that all refinement would take place in Mozambique. Mozambique's biofuels policy remains in development, despite this high-level articulation of principles. Ministry of Energy Director of Renewable Energy Dr. Antonio Saide explained to EmbOffs that he is reviewing a draft policy which will be under discussion within the

government. Dr. Saide said that approval of ethanol projects from sugarcane was relatively straightforward because Mozambique is familiar with sugarcane (Ref D). However, the GRM is cautious and much less familiar when it comes to bio-diesel projects, particularly with respect to non-conventional crops, such as jatropha. The GRM will likely not grant further project approvals until the biofuels policy has been finalized.

A BIO-DIESEL CANDIDATE?

¶4. (SBU) Mozambique has been identified as a strong candidate to benefit from the development of biofuels because of its extensive natural resources, including arable land and water, inexpensive labor, tropical climate and expanding need for fuels. However, a bio-diesel market in Mozambique is improbable until excess domestic production of vegetable oil exists. Currently, the domestic market is unready for bio-diesel, as edible vegetable oils have more value than as bio-diesel, diesel is cheaper to purchase than bio-diesel is to produce, and there is no market for feed cake (Note: bio-diesel sales alone cannot cover production costs, there needs to be a secondary market for leftover plant material, or feed cake. While not available now, the rapidly growing poultry industry may provide a future feed market. End Note)

AND ETHANOL?

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¶5. (SBU) Brazil has subsidized its own bio-ethanol industry for over 20 years to include establishment of mandates for special fuel autos, suggesting that to implement the same, Mozambique would have to develop a subsidy scheme to promote bio-ethanol. Further, sugarcane-to-bio-ethanol production requires significant chemical inputs, thus limiting smallholder participation and competing directly with food production. Finally, bio-ethanol is of marginal benefit at best in terms of CO2 production, from an environmental and economic basis. Nonetheless, two production scale bio-ethanol projects have been approved and are under development in Mozambique.

¶6. (SBU) The first bio-ethanol project, developed by Rusni Distilleries, an Indian concern which has partnered with national petroleum company Petromoc and the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), agreed in September 2007 to a \$30 million sweet sorghum-to-bio-ethanol project in Sofala Province. Currently the project is in the feasibility study stage and under review by the Government of Mozambique (GRM). The second project, signed by the GRM in October 2008, is led by Procana, whose main investor is Central African Mining and Exploration Company (CAMEC), and is located in Massinger, Gaza Province. The proposed \$510 million project will use 74,000 acres of sugarcane to produce 85 million gallons of bio-ethanol. A third project awaiting GRM approval is in Dombe, Manica Province. Proposed by Principle Energy of the UK to produce 60 million gallons of bio-ethanol annually from 49,000 acres of sugarcane, the project includes a total investment of \$597 million, including a \$290 million bio-ethanol plant, with construction beginning in 2009 and full production expected by 2011. This project may be delayed due to Principle Energy's inability to raise sufficient funding.

HOW ABOUT COCONUTS?

¶7. (SBU) One small project produced bio-diesel from dried coconut (copra) and has saved between 20-25 percent on fuel

costs. However, this was only possible because the project had a processing facility that was able to deal with the sub-standard quality of copra used as the source material. Other projects failed because of the poor quality of copra. A case in point, a Matola-based oil processing plant that processes copra into bio-diesel has stopped production due to poor quality feedstock which arrived moldy, thus unsuitable for processing.

18. (SBU) While Mozambique is a significant producer of coconuts, there are international standards for bio-diesel that are implemented with the use of automated analysis. Because of the composition of coconut oil, these automated tests cannot be used for checking the quality of coconut oil even though the oil is appropriate for use in bio-diesel. Alternative standards are being developed by Brazil and the Philippines. Mozambique may adapt these standards or develop its own; however, Mozambique currently lacks the analytical laboratory facilities to analyze oil quality for bio-diesel use.

THE CASE FOR JATROPHA

19. (SBU) The ESV Bio Africa Jatropha bio-diesel pilot project is believed to have about 12,000 acres planted, although an earlier target had been to have 27,000 acres

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planted by this time. Research is ongoing on how to deal with the toxic substances in jatropha seed and on oil quality.

110. (SBU) Noting the need for a market for the feed cake of a vegetable oil sources to make bio-diesel production profitable, Jatropha could be problematic given its toxic content. Feed cake typically has a market as feed of poultry or cattle, although there is little ranching in Mozambique, and poultry production is still developing. Of further concern, jatropha in Mozambique is being eaten by a previously unknown flea beetle, which will impact yield and long term viability.

COMMENT: BIOFUELS VIABILITY QUESTIONABLE FOR NOW

111. (SBU) A May 1, 2008 report on biofuels in Mozambique, authored by The World Bank and the Italian Government, takes a favorable view of Mozambique's potential, but this is based on many untenable assumptions including government subsidy of biofuels production and mandated targets for mixing bio-diesel. The report also fails to include world market perspectives in the analysis. Some projections about economic conditions that will support a sustainable biofuels industry in Mozambique require consistent \$70-per-barrel oil prices, for example. While oil prices were well over \$100 for a number of months recently, prices now hover below \$50 per barrel, undermining the economics of biofuel production. Tight credit markets also add to concerns about future biofuel investments in Mozambique, suggesting that a viable biofuel industry is still several years off.
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